

Koch, Kristine

From: Barbara Smith <barbara@harrisandsmith.com>
Sent: Wednesday, August 20, 2014 10:48 AM
To: Conley, Alanna; Koch, Kristine
Cc: 'Bob Wyatt'; 'Jim McKenna'; 'Jennifer Woronets'
Subject: RE: Draft Matrix for Section 1 CAG Discussion
Attachments: Fig 3.1-11a.pdf; MaY2003_ADCP_Report_Final2.jpg

Oops – I forgot the attachments referred to in the response about the tidal/river stage information. Please see attached.

Barbara

From: Barbara Smith
Sent: Wednesday, August 20, 2014 10:27 AM
To: 'Alanna Conley (Conley.Alanna@EPA.GOV)'; 'Kristine Koch'
Cc: 'Bob Wyatt'; 'Jim McKenna'; 'Jennifer Woronets'
Subject: Draft Matrix for Section 1 CAG Discussion

Alanna and Kristine

Attached is a preliminary draft matrix of the Section 1 questions/comments put into the categories we discussed at our meeting on August 14.

Our understanding from the meeting was EPA asked us to put the comments from the deFur comment documents (related to Sections 1 and 2 of the LWG's Draft FS) into the categories that Bob described in our meeting (Source Control, Distribution of Contaminants/River conditions, Sediment, Risk and Style). We didn't fill in all the answers (which I have labeled "Discussion") however I did include a couple the sticky notes that Alanna had added.

We hope this is helpful for Alanna to meet with Jim Robison and discuss which categories he would like to focus on for the September 10 CAG meeting on Section 1.

You also asked for more information to assist with answering the questions about LWR tidal and river stages. Below is an explanation provided by our technical consultants.

Relative to the tide difference, there is more than a 3 foot tidal fluctuation. Is the three feet only referencing the influence of the ocean tides on the fluctuations seen at Portland Harbor?

Correct. As stated in Section 3.1.3.2 of the RI, tides along the North American West Coast are mixed semidiurnal (two unequal high tides and two unequal low tides daily), with an average tidal range of approximately 8 ft in the Pacific Ocean. The high (i.e., flood) tide can influence Willamette River levels by up to 3 ft in Portland Harbor when the river is at a low stage.

USGS tides recorded at Morris Street Bridge show that an average tidal fluctuation in a day would not likely average to 3 feet.

The RI did not focus on the small scale daily tidal signals in Willamette River stage, but rather focuses on average daily stage. Figures 3.1-11a through h present plots of average daily stage for the study period and a comparison to the daily averages over the broader period of record (1972-2008), see attached example plot from the RI. We do have some data on the daily tidal signal which was collected

when we did ADCP (current meter) studies during RI. The attached .jpg shows there was about a 1.6 ft tidal fluctuation at Portland on May 13, 2003 when the daily river stage was averaging about 5 ft, so the average daily tidal fluctuation over a year would not likely average 3 ft (it would be less), but this is inferred from this limited daily data set and the seasonal river stage patterns, i.e., we don't have the daily tidal fluctuation data from the gauge to actually calculate it an annual daily tidal fluctuation average.

River Stage vs Tidal Fluctuations

Stage on the Willamette is primarily influenced by regional precipitation, flow control from upstream dams, and water levels on the Columbia River. Per Section 3.1.4.2 of the RI, low water stages on the Willamette typically occur during the regional dry season from August to November. Winter (November to March) river stage is relatively high but variable due to short-term changes in precipitation levels in the Willamette basin. Finally, a distinct and persistent period of relative high water occurs from late May through June when the Willamette River flow into the Columbia is slowed during the spring freshet by the high-water stage in the Columbia River. Further, upstream reservoirs reduce the river flow during the winter snow and rain events by storing water. With each major storm, water is stored and then released at the end of the storm to smooth out the flow of the river.

The high frequency (~ two per day) tidal highs and lows are superimposed on the longer-term days to seasons river stage fluctuations in Portland Harbor. Again, the superimposed tidal fluctuation is more significant when the river stage is low.

Please let us know how we can further help you develop the September 10 presentation.

Best Regards,

Barbara

Barbara J. Smith
Harris & Smith Public Affairs
(206) 343-0250 – office
(206) 605-3392 - cell
barbara@harrisandsmith.com
www.harrisandsmith.com

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